

## ABSTRACT

The oscillator includes an active device, a substrate, a microstrip line formed on the substrate, and a dielectric block. The resonator is made up with the microstrip line and the dielectric block that is disposed so as to couple with the microstrip line. The active device produces a negative resistance in a desired oscillation frequency band. The dielectric block is set such that a resonance frequency of the lowest order mode of the dielectric block is lower than a desired oscillation frequency, and the resonance frequency of one of the higher order modes coincides with the desired oscillation frequency. The oscillator is generated with the higher order mode of the resonator. Thus, the invention provides at a low cost a millimeter wave band oscillator of a low phase noise by using this oscillator, and a transmitter-receiver module and a radar system applying this oscillator to the local signal generator.

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